Quick Start - Micrium YRDKRX62N

Do not connect the J-Link USB port on the RDK until the installation software has been installed!

- THIS Quick-start Guide is intended to get you started with uC/OS-III and the book that goes along with this kit. If you would like the NON-RTOS projects, please refer to the other Quick-start Guide!
- For details on the software components installed during installation, refer to Chapter 2 of the Micrium Book – either in the included .pdf (Start-> (All) Programs->Micrium (non-printable) – or the hard copy available at http://micrium.com/page/products/books/os-iii-books/os-iii-renesas-rx62n.
- We recommend you use the latest installer located at www.Renesas.com/rdkRX62Ninstall. If for some reason, you are not able to complete this download right now, you can use the CD – but be aware that the latest installer, application notes and application programs are continuously updated and saved at www.Renesas.com/rdkRX62N.
- This board comes pre-installed with a demo program (Micrium Demo 4). While following this Quick-start Guide, we will install Micrium Demo 1 into the board. Should you want to return the board to factory-new condition, simply load Demo 4 into the board.
- For basic operation, the RDKRX62N only needs USB power. The Aux Power Jack J4 (+5v Regulated input) is only necessary in high-current operation.
- The single install contains the following components:
    a. HEW (High Performance Embedded Workshop) – IDE
    b. RX Toolchain (C/C++ compiler, assembler, linker, with demonstration projects)
    c. GNU Toolchain (C/C++ compiler, assembler, linker) (**Note:** You must select **KPIT GNU RX** during the first page of the installation process to compile the Micrium demo projects. You will also need to sign up for a KPIT account during the install process).
    d. Segger J-Link Lite Debugger
    e. Micrium Files including example files, port for RX62N, and μC/Probe
    f. Manual Navigator with the following documents loaded: Schematics, Gerbers, RX62N Hardware Manual, RX Software Manual, YRDKRX62N Users Manual, YRDKRX62N Quick-start Guide, all the RDK Partner Datasheets.

Software Download and Installation

1. Open your favorite browser and surf to www.Renesas.com/rdkRX62Ninstall. If no internet connection is present, go to Step 3 to install from the included CD.
2. Click on "Download installation CD for the RX62N RDK" and download the file to your hard drive. Execute the file to extract the CD files to your computer. Locate the file "Setup.exe" in the CD files. Double click on this file to start installation. Follow the on-screen directions to install the required software. Proceed to Step 4.
3. If you cannot download the most up-to-date installer, insert the enclosed CD into your CD or DVD drive. The program "Setup.exe" should auto-start to install the required software. IF the program does not auto-start, surf to the CD or DVD drive and double-click on "Setup.exe". Follow the prompts to install all the software components.

Connection

4. On the RDK, ensure the MCU Mode DIP switch, SW5, is set to "DEBUG" (OFF, OFF, ON, OFF) as shown on the right.
5. Connect one end of the included USB cable to your computer and the other end to J14 of the RDK (USB port to the left of the LED Ring). This is the debug interface and where we power the board from.
6. The 'Found New Hardware' Wizard <u>may</u> appear. Please follow the steps below to install the drivers. Note that administrator privileges are required for Windows® 2000/XP/Vista/Win7 machines.
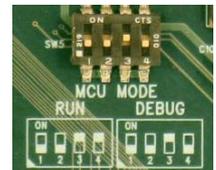
Windows® 2000/XP	Windows Vista / Windows 7 (32 or 64)
a. Select option 'No, not this time' in "Found New Hardware" Wizard dialog, and click <Next> button.	a. Select "Locate and install driver software (recommended)."
b. Verify the "Recommended" option is selected and click <Next>.	b. "User Account Control" dialog box will appear. If applicable, enter administrator password and click <OK>.
c. If using Windows XP, go to step 'e'; otherwise, click <Next>.	c. Driver installation will start. After couple of minutes, a "Windows security" dialog box will appear. Select "install this driver software anyway."
d. Click <Next> to install the driver.	d. "Device driver software installed successfully" pop-up will appear in the windows toolbar and installation will complete.
e. Click <Finish> to close the wizard.	

RDK Validation

Before we program the board, let's verify the board is working when you received it.

7. If you have an Ethernet cable and a switch, hub, or router to plug it into, plug one end into the RDK and the other into your hub/switch/router.
8. Press the "RESET" button, located above the SEGGER logo.
- Two LEDs should light and rotate around the LED ring -- one green and one red.
- The LCD display will show the progress of acquiring a Network Address (IP Address, Subnet Mask, Gateway).
- Finally, the desired and actual frequency of the Simulated Motor Control Loop will be displayed. To change the desired frequency, adjust the potentiometer located below the display.

HEW Workspace and Demonstration Programs

HEW integrates various tools such as the compiler, assembler, debugger and editor into a common graphical user interface. To learn more on how to use HEW, open the HEW manual installed on your computer (Start Menu > All Programs > Renesas > High-performance Embedded Workshop > Manual Navigator).

9.   Launch "**High-performance Embedded Workshop**" from the Start Menu (All Programs > Renesas > High-performance Embedded Workshop).

10. In the "Welcome" dialog box, select "Browse to another project workspace" and click <OK>.

11. Navigate to "C:\Micrium\Software\EvalBoards\Renesas\YRDKRX62N\GNURX\" and click on "GNURX" to select it.

12. Now click on the <SELECT> button to open this workspace. **NOTE:** µCOS-III-Ex1 will be selected by default.

13. From the top menu bar, select "Build", then "Build All." (HEW Menu Bar > Build > Build All)

14. Let's connect HEW to the RDK through the JLink Debugger. Click on the Debug Session pull-down and select JLink.

15. When asked if you want to save the "Default Session", click <Yes>.

16. In the "Initial Settings" dialog box:
     a.   Verify MCU Group is set to "RX62N Group."
     b.   Verify device is set to "R5F562N8."
     c.   Verify mode is set to "Debugging mode."
     d.   Click <OK>.

17. The first time you connect to the RDK, the J-Link debugger MAY need to update its firmware. If the "Confirm Firmware" window on the right appears, click <Yes>.

18. You will see some messages in a Connecting dialog box, then the "Configuration Properties"   dialog box will be displayed. Click <OK> to agree with the settings.

19. From the top menu bar, select "Debug", then "Download Modules", and finally "All Download Modules."
     NOTE: The 'Downloading" window will show the progress of the download; once completed it will disappear.

20. Click the <Reset – Go> icon.

- The code will run and the RDK will run the demonstration program.
- The LCD Display will display a message "Ethernet Link Down!"
     a.   If you connected an Ethernet cable during Step 6, we will display the Network Address once it is acquired.
     b.   If you did not connect an Ethernet cable or we cannot acquire a Network Address, we will display a default Network Address.
- After the network address is acquired – the demo will become active.

21. Click the <Stop> icon,   , to stop code execution. HEW will display the source code at the current program counter. (If a Window pops up asking you to locate the source code, close the window. For more information on why this happens, refer to the YRDKRX62N page on www.RenesasRulz.com.

NOTE: The workspace contains five demonstration projects that are described in detail in the book "µC/OS-III: The Real-Time Kernel for the Renesas RX62N." By default, the active project is µCOS-III-Ex1. To change the active project, select "Project" from the top menus, then "Set Current Project" and finally click on the project you want active. FACTORY PROGRAM: The project that was in the RDK when you received it was µCOS-III-Ex4 (motor control demo).

Compilers

The demonstration code is built using the GNU compiler. This compiler contains NO limitations.

Support

Support Forums for this RDK: www.RenesasRulz.com/rdkRX62N   Website for this RDK: www.renesas.com/rdkRX62N

To obtain the RDK Companion Book from Micrium – either use the complete book .pdf on the included CD (non-printable) or for hard copy go to:
http://micrium.com/page/products/books/os-iii-books/os-iii-renesas-rx62n

Online training for RX and other products and tools is available at: www.RenesasInteractive.com

Technical Support email addresses:
America: techsupport.america@renesas.com   Europe: tools.support.eu@renesas.com   Japan: csc@renesas.com

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Micrium Book

A hardcopy of the Micrium book is available at http://micrium.com/page/products/books/os-iii-books/os-iii-renesas-rx62n.
(The softcopy is included with the install at: START->(All) Programs->Micrium.)